

LESSON

1.5

Name _____ Date _____

Study Guide

For use with pages 28–33

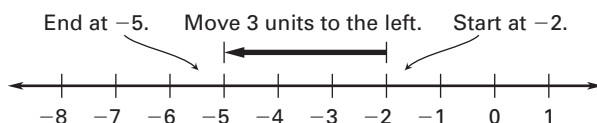
GOAL Add integers.**ADDING INTEGERS**

- 1. Same Sign** Add the absolute values and use the common sign.
- 2. Different Signs** Subtract the lesser absolute value from the greater absolute value and use the sign of the number with the greater absolute value.
- 3. Opposites** The sum of a number and its opposite is 0. Algebraically, $a + (-a) = 0$ is called the *additive inverse property*.

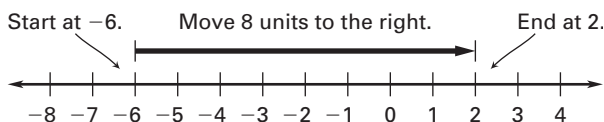
EXAMPLE 1 Adding Integers Using a Number Line

Use a number line to find the sum.

a. $-2 + (-3)$

**Answer:** The final position is -5. So, $-2 + (-3) = -5$.

b. $-6 + 8$

**Answer:** The final position is 2. So, $-6 + 8 = 2$.**EXAMPLE 2** Adding Two Integers

a. Find the sum $-32 + (-27)$.

$$-32 + (-27) = -59$$

Same sign: Add $|-32|$ and $|-27|$.

Both integers are negative, so the sum is negative.

b. Find the sum $-63 + 39$.

$$-63 + 39 = -24$$

Different signs: Subtract $|39|$ from $|-63|$.

$|-63| > |39|$, so the sum has the same sign as -63 .

Study Guide

For use with pages 28–33

Exercises for Examples 1 and 2

Use a number line to find the sum.

1. $-10 + 7$

2. $-3 + (-14)$

3. $15 + (-21)$

Find the sum.

4. $45 + (-27)$

5. $-31 + (-11)$

6. $-89 + 68$

EXAMPLE 3 Adding More Than Two Integers

You record withdrawals and deposits in your checkbook. The starting balance is \$265. The first withdrawal is \$20. The second withdrawal is \$92. The first deposit is \$40. What is the final balance?

$$\begin{aligned} 265 + (-20) + (-92) + 40 &= 245 + (-92) + 40 && \text{Add 265 and } -20. \\ &= 153 + 40 && \text{Add 245 and } -92. \\ &= 193 && \text{Add 153 and 40.} \end{aligned}$$

Answer: The sum is 193, so the final balance is \$193.

Exercises for Example 3

Find the sum.

7. $-18 + (-33) + 48$

8. $75 + (-54) + (-8)$

9. $-26 + 41 + (-53)$

EXAMPLE 4 Evaluating Variable Expressions

Evaluate the expression when $a = -18$ and $b = -26$.

a. $34 + a$

b. $a + b + 44$

Solution

$$\begin{aligned} \text{a. } 34 + a &= 34 + (-18) \\ &= 16 \end{aligned}$$

Substitute -18 for a .
Add.

$$\begin{aligned} \text{b. } a + b + 44 &= (-18) + (-26) + 44 \\ &= -44 + 44 \\ &= 0 \end{aligned}$$

Substitute for a and for b .
Add -18 and -26 .
Add -44 and 44 .

Exercises for Example 4

Evaluate the expression when $x = -23$ and $y = -9$.

10. $x + (-8)$

11. $14 + y$

12. $x + 33 + y$